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Two new species of the *Macrophya annulitibia* group (Hymenoptera: Tenthredinidae) with a key to species from China

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Abstract: Two new species of the *Macrophya annulitibia* group in the genus *Macrophya* Dahlbom (Hymenoptera: Tenthredinidae) from Sichuan Province and Tibet Autonomous Region, China, *Macrophya kaiweni* Liu, Li & Wei **sp. nov.** and *M. pseudoshengi* Liu, Li & Wei **sp. nov.**, are described. A key to all Chinese species of the *M. annulitibia* group and a distribution map of it in China are provided.

Key words: Tenthredinoidea; Tenthredininae; taxonomy; sawflies

中国钩瓣叶蜂属 *Macrophya annulitibia* 种团二新种及分种检索表（膜翅目：叶蜂科）

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摘要：记述采自中国四川和西藏钩瓣叶蜂属 *Macrophya* Dahlbom 环胫钩瓣叶蜂种团 *M. annulitibia* group 2 新种：凯文钩瓣叶蜂 *Macrophya kaiweni* Liu, Li & Wei **sp. nov.** 和拟盛氏钩瓣叶蜂 *M. pseudoshengi* Liu, Li & Wei **sp. nov.**；提供了 *M. annulitibia* group 中国已知种类检索表和分布图。

关键词：叶蜂总科；叶蜂亚科；分类；叶蜂

Introduction

Macrophya Dahlbom, 1835 is the third largest genus in the subfamily Tenthredininae (Hymenoptera: Tenthredinidae). Excluding the two new species described in this work, 316 species worldwide and 179 species from China have been recorded up to December 2020 (Li *et al*. 2019a, b; Liu *et al.* 2019a, b, c, 2020a, b, c). The taxonomy and distribution of this genus in China has been studied by the last author and his co-workers since 1994 and the division of *Macrophya* by species groups was given by Li *et al.* (2016, 2018, 2019b).

In this study, two new species belonging to this species group from Sichuan Province and Tibet Autonomous Region, China are described. A key to the seventeen species found in China is provided.

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Material and methods

All specimens of these newly described species were obtained by sweeping in wooded bog and forest fringe zones in Sichuan and Tibet (Southwest China) in 2013 and 2016. Three specimens of two new species were examined and studied for this work. The specimens were examined with a Motic-SMZ-171 stereomicroscope. Adults images were taken with a Nikon D700 digital camera and a Leica Z16APO. The genitalia were examined with a Motic BA410E microscope and photographed with a Motic Moticam Pro 285A. Images were focus-stacked using Helicon Focus (HeliconSoft, Kharkiv, Ukraine) and further processed with Adobe Photoshop CS 11.0.

The terminology of genitalia follows Ross (1945) and that of general morphology follows Viitasaari (2002). For a few terms (e.g. middle fovea and lateral fovea), we follow Takeuchi (1952).

The holotype and some paratypes are deposited in the Asian Sawfly Museum, Nanchang, China (ASMN). Some paratypes of this new species are deposited in the Scientific Research and Management Center of East China Pharmaceutical Botanical Garden, Lishui, Zhejiang, China (formerly Lishui Academy of Forestry, LSAF).

Abbreviations: OOCL — the distance between a lateral ocellus and the occipital carina, or the hind margin of the head where this carina would be if it were developed (Benson 1954); OOL — the shortest distance between an eye and a lateral ocellus; POL — the distance between the mesal margins of the two lateral ocelli.

Taxonomy

Macrophya annulitibia species group

Diagnosis refers to Li *et al*. (2017) and Liu *et al*. (2015, 2016).

Key to the Chinese species of the *Macrophya annulitibia* group

1. The fore wing with more or less transverse smoky band below stigma ·· 2

-. The fore wing hyaline, without smoky band below stigma ·· 5

2. Metepimeral appendage broad and large, approximately 3.5× breadth of cenchrus, center of metepimeral appendage slightly shiny, with clear microsculptures and punctures; fore wing with feeble, transverse smoky band below stigma, boundary not clear; hind trochanter entirely black, without white macula; hind tibia and tarsi entirely blackish brown; middle serrulae of lancet in female usually with 22 to 29 distal teeth, subbasal teeth very minute. China (Gansu, Shaanxi) ·· *M. rugosifossa*

-. Metepimeral appendage smaller than the former, approximately 2× breadth of cenchrus, metepimeral appendage shiny, without distinct microsculptures or punctures; fore wing with distinct, transverse smoky band below stigma, boundary clear; hind trochanter entirely white, if largely white, ventral side of hind trochanter with black maculae; hind tibia entirely black, hind tarsi with more or less white maculae; middle serrulae of lancet in female usually with 9 to 13 distal teeth, subbasal teeth small ······························ 3

3. Ventral side of hind trochanter with clear black macula; hind tarsomeres entirely black; middle serrulae each with 2 proximal and 9 to 10 distal teeth. China (Sichuan) ···················· *M. kaiweni* Liu, Li & Wei **sp. nov.**

-. Ventral side of hind trochanter with weak black macula, or hind trochanter white; hind tarsomeres largely black; middle serrulae each with 2 proximal and 12 to 13 distal teeth ··· 4

4. Antenna partly white, antennomere 3 approximately 1.1× as long as antennomere 4; connected area of

bottom inner orbit and outer orbit of eyes with clear white macula; posterior margin of metepimeron slightly extended downward and concave, appendage narrow and small; hind femur with white band dorsally. Myanmar; China (Sichuan, Yunnan)··*M. pompilina*

-. Antenna entirely black, antennomere 3 approximately 1.4× as long as antennomere 4; inner orbit and outer orbit of eyes black, without white macula absolutely; posterior margin of metepimeron extended downward, strongly concave, appendage wide and large; hind femur entirely black. China (Chongqing, Gansu, Henan, Hubei, Shaanxi, Shanxi, Sichuan, Yunnan) ··· *M. parapompilina*

5. Hind tibia and tarsomere 1 entirely black, without reddish or yellowish macula ································ 6

-. Hind tibia and tarsomere 1 with reddish more or less or yellowish maculae ····································· 7

6. The labrum, apical 2/3 of clypeus and outer side of tegula white; ventral side of fore coxa, outer side of middle coxa and ventral sides of fore and middle trochanters white; hind trochanter largely white, ventral sides with weak black maculae; fore and middle tarsi short, some stripes in dorsal side of hind metabasitarsus, base largely of tarsomeres 2–3 and base of tarsomere 5 white; middle parts of metepimeronal appendage deep; lancet long, middle serrulae each with 2 proximal and 7 to 9 distal teeth, serrulae slightly protruding. China (Sichuan) ·· *M. ludingensis*

-. The labrum, clypeus and tegula entirely black; fore and middle coxae and trochanters entirely black; hind trochanter entirely black; fore and middle tarsi 3–4 and base of tarsus 5, apical half of hind tarsus 2, hind tarsi 3–4 and base of hind tarsus 5 white; middle parts of metepimeronal appendage shallow; lancet short, middle serrulae each with 2 proximal and 4 to 6 distal teeth, serrulae distinctly protruding and papillose-like. China (Sichuan) ··· *M. niuae*

7. Hind tibia and tarsomere 1 with reddish maculae··· 8

-. Hind tibia and tarsomere 1 with yellowish white maculae ··11

8. Basal 1/3 to 1/2 of hind tarsomere 1 with reddish maculae·· 9

-. Basal 2/3 or almost entire of hind tarsomere 1 with reddish maculae ··10

9. Reddish maculae on hind tibia shorter than half of hind tibia; postocellar area about 3× broader than long; middle serrulae with 3 to 5 distal teeth. China (Sichuan) ·· *M. tenuisoma*

-. Reddish maculae on hind tibia approximately 2/3 of hind tibia base, apical 1/3 black; postocellar area about 2.5× broader than long; middle serrulae with 4 to 6 distal teeth. China (Gansu, Hubei, Ningxia, Shanxi, Tibet)··· *M. liufeii*

10. Labrum and clypeus, fore and middle trochanters entirely yellowish white; postocellar area about 2× broader than long; middle serrulae with 7 to 9 distal teeth. China (Hubei, Shaanxi)·········· *M. brevicinctata*

-. Labrum and clypeus not entirely black, following parts yellowish white: a small macula on anterior margin of labrum and base with small subround macula of clypeus; fore and middle trochanters largely black, short part yellowish white; postocellar area about 2.2× broader than long; middle serrulae with 10 to 12 distal teeth. China (Sichuan, Yunnan)··*M. gongshana*

11. Following parts mainly yellowish brown: antennomeres 5–6, broad band on posterior margin of abdominal tergum 2, large maculae on center part of prescutum, upper corner on dorsal margin of anepimeron, large maculae of katepimeron, lower corner of metepisternum, center parts with broad maculae row of abdominal terga 3–8. China (Tibet) ··· *M. cloudae*

-. All antennomeres entirely black; other characters not different from the former·······························12

12. Middle serrulae distinctly papillose-like; dorsum of head densely and minutely punctured, not coarse; postocellar area about 3× broader than long; frons elevated, as high as top of eyes in lateral view; large corners on lateral corners of pronotum yellowish white; hind metabasitarsus largely yellowish white, base with weak black maculae; distance between cenchri 2.5× breadth of a cenchrus; cell 2Rs in the fore wing slightly longer than cell 1Rs. China (Hubei, Shaanxi) ··*M. spinoserrula*

-. Middle serrulae not papillose-like; other characters not different from the former ·····························13

13. Pronotum entirely black in female; lateral corners of posterior margin with clear yellowish white maculae in male ··· 14

-. Lateral corners of posterior margin of pronotum with yellow or yellowish white maculae in female, unknown in male ··· 15

14. Postocellar area about 2.5× broader than long; hind tarsomere 1 entirely black. North Korea; Japan; East Siberia; China (Gansu, Henan, Heilongjiang, Jilin, Liaoning, Sichuan) ··· *M. annulitibia*

-. Postocellar area about 2× broader than long; hind tarsomere 1 largely pale yellowish white at apex, short part black at base. China (Gansu, Henan, Hubei, Liaoning, Ningxia, Shaanxi, Sichuan, Yunnan) ··· *M. qinlingium*

15. Apical 1/7 of fore wing with a sub-rounded, smoky macula. China (Sichuan, Tibet) ··· *M. xinan*

-. Fore wing without smoky macula ··· 16

16. Labrum and clypeus entirely yellowish white; mesoscutellum entirely black; lateral margins of pronotum with yellowish white maculae smaller than the former; basal 1/3 of hind femur yellowish white, apical 2/3 black; middle 1/3 of hind tibia a broad yellowish white ring; hind tarsomere 1 almost entirely yellowish white, but base with weak black macula; postocellar area 3× broader than long; distance between cenchri 2.5× breadth of cenchrus; fore wing with cross-vein 2r joining cell 2Rs at apical 1/3, petiole of anal cell in fore wing about 1.5× length of cross-vein 1r-m, 0.7× longer than cross-vein 1m-Cu, 1.5× longer than cross-vein Cu-a; middle serrulae of lancet each with 1 to 2 proximal and 5 to 6 distal teeth. China (Sichuan) ··· *M. shengi*

-. Labrum entirely black, basal parts largely of clypeus yellowish white, lateral lobes with black maculae clearly; mesoscutellum entirely yellowish white; lateral corners of pronotum yellowish white; basal half of hind femur yellowish white, apical half black; middle 2/5 of hind tibia with a broad yellowish white ring; basal 2/3 of hind tarsomere 1 black, apical 1/3 yellowish white; postocellar area 2.2× broader than long; distance between cenchri 2× breadth of cenchrus; fore wing with cross-vein 2r joining cell 2Rs at apical 1/4, petiole of anal cell in fore wing about 2.5× length of cross-vein 1r-m, as long as cross-vein 1m-Cu, 2× longer than cross-vein Cu-a; middle serrulae of lancet each with 2 proximal and 7 to 9 distal teeth. China (Tibet) ··· *M. pseudoshengi* Liu, Li & Wei **sp. nov.**

1. ***Macrophya kaiweni*** **Liu, Li & Wei sp. nov.** (Fig. 1)

Female. Body length 9 mm. Body and legs black; following parts white: base of mandibles, palpi largely, a small triangular macula on anterior margin of labrum, two small narrow maculae in base of clypeus, inner orbit and outer orbit of eyes, anterior margin of pronotum, narrow stripes on outer margin and broad stripes on posterior margin of pronotum, anterior part 1/3 of tegula, center of posterior margin of abdominal tergum 1, abdominal tergum 10, outer side of fore coxa, broad stripes on outer sides of middle and hind coxae, some stripes on anterior sides of fore femur and tibia, some weak stripes on anterior side of middle femur and all trochanters. Body hairs silver; setae on sheath short, blackish brown. Wings hyaline, with smoky macula below stigma; stigma and veins largely blackish brown (Fig. 1A).

Dorsum of head feebly shiny, frons rugosely and densely punctured, without smooth interspaces between punctures, with fine microsculpture (Fig. 1B); labrum and clypeus less shiny, labrum with sparse and shallow punctures, clypeus with some large shallow punctures and clear microsculpture (Fig. 1C). Thorax feebly shiny, lateral corners of pronotum with fine microsculpture; mesonotum with punctures smaller and sparser than punctures on head, interspaces with fine microsculpture; mesoscutellum not shiny, with some shallow punctures, interspaces between punctures with weak microsculpture; mesoscutellar appendage shiny, with some shallow punctures and fine microsculpture; metascutellum less shiny, without puncture but with fine microsculpture. Mesepisternum less shiny, densely and minutely punctured, interspaces between punctures with fine microsculpture; anepimeron rugosely punctured and wrinkled; anterior margin of katepimeron strongly shiny, without puncture or microsculpture, posterior parts of katepimeron with some shallow punctures and weak microsculpture; metepisternum not shiny, with fine punctures and microsculpture; metepimeron shiny, large parts smooth, without punctures or microsculpture; margin of metepimeronal appendage very shiny, extended downward and concave, center parts containing some shallow punctures, without microsculpture or long hair (Fig. 1E). All abdominal terga feebly shiny, lateral sides of tergum 1 with some fine punctures, center with fine microsculpture; other abdominal terga weakly shiny, with shallow punctures and weak microsculpture. Hind coxa and outer side of hind femur with minute and dense punctures, interspaces between punctures with fine microsculpture. Surface of sheath coriaceous, lower half of sheath with minute punctures and fine microsculpture.

Middle of labrum weakly elevated, anterior margin truncate; clypeus weakly elevated, approximately 2.4× broader than long, base broader than distance between lower corner of eyes; lateral sides distinctly convergent forwards, anterior margin deeply arched and incised to approximately 1/4 length of clypeus, lateral lobes broad and short, sub-angular like (Fig. 1C); malar space 0.5× breadth of the diameter of middle ocellus; eyes large, middle of frons flat, slightly lower than top of eyes in lateral view; middle fovea shallow but distinct; lateral foveae small, short furrow-like; interocellar furrow distinct, postocellar furrow indistinct; POL : OOL : OCL = 4 : 15 : 11; postocellar area weakly elevated, posterior margins oblique, approximately 1.6× broader than long, anterior 3/4 of lateral furrows slightly deep and clearly divergent backwards, posterior 1/4 of lateral furrows disappear; head strongly narrowed behind eyes in dorsal view, occipital carina complete (Fig. 1B). Antenna slender, 1.4× length of head and thorax together (11 : 8), as long as abdomen; antennomere 2 approximately 0.75× length of broad (3 : 4), antennomere 3 approximately 1.1× length of antennomere 4 (105 : 95), 0.6× longer than antennomeres 4 and 5 combined (105 : 177), subapical antennomeres weakly compressed and inflated, subapical antennomeres 6 to 9 slightly reduced, without longitudinal groove (Fig. 1D). Mesoscutellum tapered elevated, without peak and lateral carina on posterior margins, without distinct middle carina, as high as the top of mesoscutum; mesoscutellar appendage with a distinct middle carinae; metascutellum with a short and low middle carina; mesopleuron and metapleuron as shown in Fig. 1E; dorsal-posterior platform of mesepimeron as broad as diameter of middle ocellus; distance between cenchri 2× breadth of cenchrus. Inner tibial spur of hind leg 0.6× length of hind tarsomere 1 (16 : 27); hind tarsomere 1 slender, about 1.2× length of following 4 tarsomeres together (27 : 23); claw with inner tooth shorter and broader than outer tooth. Ovipositor sheath slightly shorter than hind tarsomere 1 (22 : 27), apical sheath slightly longer than basal sheath (6 : 5), apical margin roundish narrowed in lateral view (Fig. 1F). Fore wing with cross-vein Cu-a joining cell 1M at basal 1/4, cross-vein 2r joining cell 2Rs at apical 3/7, middle of cross-vein 2r-m slightly curved outwards, cell 2Rs as long as cell 1Rs; petiole of anal cell in fore wing approximately 0.7× length of cross-vein 1r-m, approximately 0.5× length of cross-vein Cu-a; anal cell of hind wing without petiole. Lancet with 22 serrulae (Fig. 1G), middle serrulae protruding and each with 2 proximal and 9 to 10 distal teeth, subbasal teeth small, annular spine bands narrow, with sparse pilosity;

8th–10th serrulae at base as in Fig. 1H.

Male. Unknown.

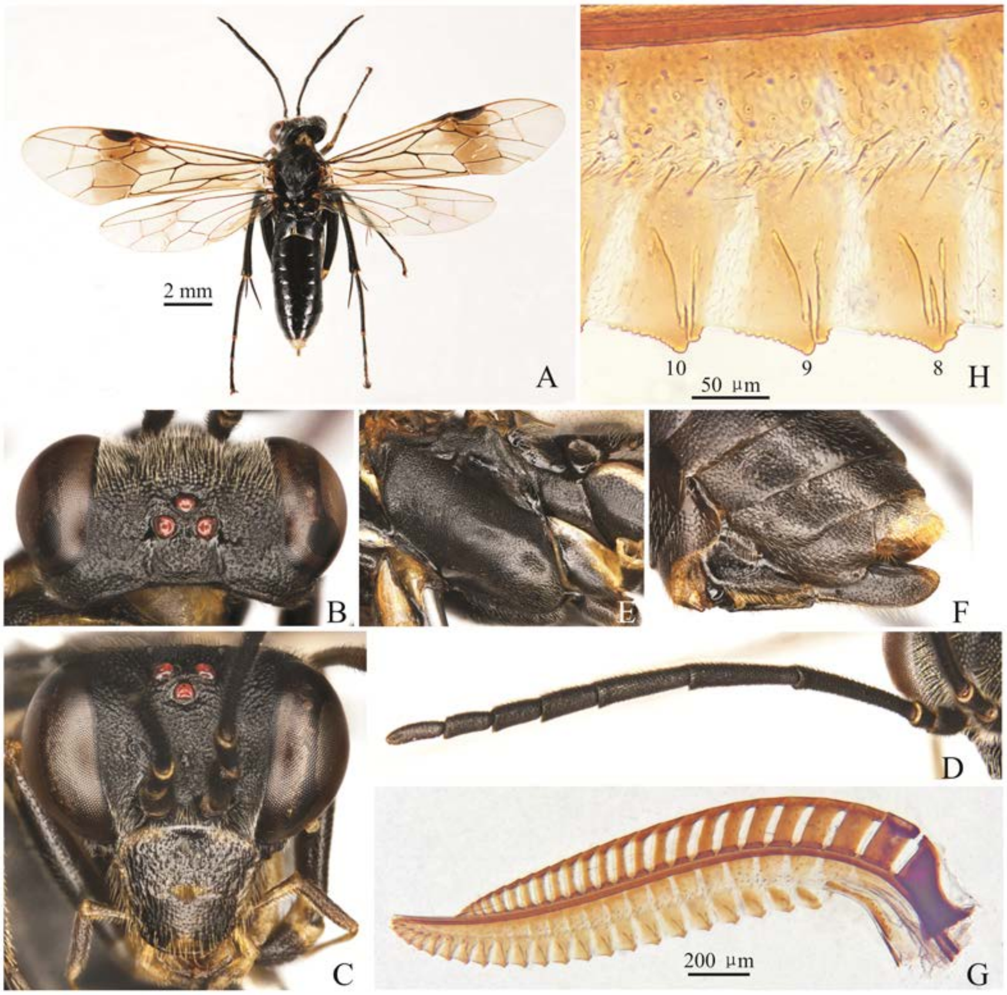

Figure 1. *Macrophya kaiweni* Liu, Li & Wei **sp. nov.**, ♀, holotype. A. Adult, dorsal view; B. Head, dorsal view; C. Head, anterior view; D. Antenna, lateral view; E. Mesopleuron and metapleuron; F. Ovipositor sheath, lateral view; G. Lancet; H. The 8th–10th serrulae.

Holotype. ♀ (CSCS16129) **China**, Sichuan Province, Anzihe Nature Reserve, Shaoyaogou, 103°13′20″E, 30°46′53″ N, 25-VI-2016, alt. 1580 m, Kaiwen GAO leg., $CH_3COOC_2H_5$. **Paratype**. 1♀ (CSCS16142) **China**, Sichuan Province, Anzihe Nature Reserve, Shaoyaogou, 103°13′20″E, 30°46′53″N, 11-VII-2016, alt. 1580 m, Kaiwen GAO leg., $CH_3COOC_2H_5$.

Etymology. This species epithet “*kaiweni*” is derived from the name of Mr. Kaiwen GAO, referring to the new species collected by him.

Remarks. The new species is similar to *M. parapompilina* Wei & Nie, 1999, but differs from the latter in having the small narrow white maculae in base of clypeus, center with black macula and two lateral white maculae of clypeus connected; margin of metepimeronal appendage broad, concave area small and deep; ventral sides of hind trochanter with clear black maculae; hind tarsus entirely black. In *M. parapompilina*, the basal 1/3 of clypeus white, center parts on base without black macula, apical 2/3 of clypeus black; margin of metepimeronal appendage narrow, concave area large and shallow; ventral sides of hind trochanter with weak black maculae; hind tarsus largely black, but basal and apical parts white.

The new species is also similar to *M. pompilina* Malaise, 1945, but differs from the latter in having the inner orbit and outer orbit entirely black, without white macula absolutely; fore and middle trochanters largely black, slightly white; ventral sides of hind trochanter with clear black maculae; hind femur entirely black, dorsal sides without white band; middle serrulae of lancet with 9 to 10 distal teeth. In *M. pompilina*, the connected area between bottom of inner orbit and outer orbit of eyes with clearly white maculae; fore and middle trochanters largely white, slightly black; hind trochanter entirely white; hind femur largely black, dorsal sides with clearly white band; middle serrulae of lancet with 12 to 13 distal teeth.

2. ***Macrophya pseudoshengi*** **Liu, Li & Wei sp. nov.** (Fig. 2)

Female. Body length 7 mm. Body largely black; apex of mandibles reddish brown; following parts yellowish white: palps largely, clypeus largely, lateral corners of pronotum, anterior margin of tegula, mesoscutellum, a small macula on frontal area of metascutellum, apical margins of all coxae, all trochanters, base and apex of fore femur, base of middle femur, basal half of hind femur, some stripes on anterior side of fore tibia, anterior side of middle tibia, middle 1/3 with a broad ring of hind tibia, fore and middle tarsomere 1 largely and other tarsomeres, apical 1/3 of hind tarsomere 1 and other tarsomeres (except for claw). Body hairs pale yellowish brown, setae on sheath pale black brown. Wings sub-hyaline, without smoky macula, stigma and veins black brown (Fig. 2A).

Dorsum of head feebly shiny, frons minutely and densely punctured, interspaces between punctures with fine microsculpture (Fig. 2B); labrum and clypeus shiny, labrum with very sparse and shallow punctures, clypeus with some shallow punctures, microsculpture fine. Mesoscutum with punctures shallower and denser than punctures on head, interspaces with fine microsculpture; mesoscutellum not shiny, apex with some shallow punctures; mesoscutellar appendage without puncture, but with weak microsculpture; metascutellum with some shallow punctures. Mesepisternum densely and minutely punctured, smooth interspaces clear between punctures; anepimeron rugosely punctured and wrinkled; anterior margin of katepimeron strongly shiny, without punctures or microsculpture, posterior part of katepimeron with some shallow punctures and distinct microsculpture; metepisternum with fine punctures and microsculpture; metepimeron shiny, most parts smooth, without puncture or microsculpture; posterior margin of metepimeron extended downward and concave, appendage small and long triangular-like, containing some minute and shallow punctures, margins nearly smooth (Fig. 2E). All abdominal terga feebly shiny, lateral sides of tergum 1 with some fine punctures, center with weak microsculpture; abdominal terga without clear punctures, microsculpture fine but distinct. Hind coxa and outer side of hind femur with minute and dense punctures, interspaces between punctures with fine microsculptures, feebly shiny. Surface of sheath coriaceous, with very fine punctures and microsculpture.

Middle of labrum weakly elevated, anterior margin truncate; clypeus nearly flat, approximately 2.6× broader than long, base slightly broader than distance between lower corner of eyes; lateral sides distinctly convergent forwards, anterior margin deeply arched, incised to approximately 1/5 length of clypeus, lateral lobes short and obtuse (Fig. 2C); malar space as broad as the diameter of middle ocellus; middle of frons slightly depressed, about as high as top of eyes in lateral view; middle fovea shallow but distinct; lateral foveae small, furrow-like; interocellar furrow distinct, postocellar furrow indistinct; POL : OOL : OCL = 9 : 21 : 10; postocellar area slightly elevated, 2.2× broader than long, lateral furrows shallow and clearly divergent backwards; head strongly narrowed behind eyes in dorsal view, occipital carina complete (Fig. 2B). Antenna slender, 1.5× longer than head and thorax together (55 : 38), 1.2× longer than abdomen (55 : 45); antennomere 2 approximately 1.2× as long as broad, antennomere 3 approximately 1.3× as long as antennomere 4 (66 : 52), 0.7× as long as antennomeres 4 and 5 combined (66 : 99), subapical antennomeres weakly compressed and inflated (Fig. 2D). Mesoscutellum roundly elevated, with low peak and without carina, as high as top of mesoscutum; mesoscutellar appendage with a distinct middle carina; metascutellum with a low and short middle carina, mesopleuron and metapleuron as in Fig. 2E; dorsal-posterior platform of mesepimeron as broad as diameter of middle ocellus; distance between cenchri 2× breadth of cenchrus. Inner tibial spur of hind leg 0.6× length of hind tarsomere 1 (3 : 5); hind tarsomere 1 slender, slightly shorter than following 4 tarsomeres together (10 : 11); claw with inner tooth clearly shorter than outer tooth. Ovipositor sheath as long as hind tarsomere 1, apical sheath as long as basal sheath, apical margin roundish in lateral view (Fig. 2F). Fore wing with cross-vein cu-a joining cell 1M at basal 1/3, cross-vein 2r joining cell 2Rs at apical 1/4, cell 2Rs as long as cell 1Rs, cross-vein 2r-m slightly oblique and erect; petiole of anal cell in fore wing about 2.5× longer than cross-vein 1r-m, as long as cross-vein 1m-Cu, 2× length of cross-vein Cu-a; anal cell of hind wing without petiole. Lancet with 20 serrulae (Fig. 2G), middle serrulae strongly protruding and each with 2 proximal and 7 to 9 distal teeth, subbasal teeth small, annular spine bands narrow, with sparse pilosity; 6th–8th serrulae as in Fig. 2H.

Male. Unknown.

Holotype. ♀(CSCS13198), **China**, Tibet, Shigatse Region, Zhangmu County, Deqingtang, 85°59′54″E, 28°4′42″N, 26-VII-2013, alt. 3150 m, Meicai WEI & Gengyun NIU leg.

Etymology. This species epithet “*pseudoshengi*” is derived from the two Latin words “*pseudo-*” and “*shengi*”, referring to the new species being very similar to *M. shengi* Li & Chu, 2015.

Remarks. The new species is similar to *M. shengi* Li & Chu, 2016, but differs from the latter in having the labrum entirely black, basal parts largely of clypeus yellowish white, lateral lobes with black maculae clearly; mesoscutellum entirely yellowish white; lateral corners of pronotum yellowish white; basal half of hind femur yellowish white, apical half black; middle 2/5 of hind tibia with a broad yellowish white ring; basal 2/3 of hind tarsomere 1 black, apical 1/3 yellowish white; postocellar area 2.2× broader than long; distance between cenchri 2× breadth of cenchrus; fore wing with cross-vein 2r joining cell 2Rs at apical 1/4, petiole of anal cell in fore wing about 2.5× length of cross-vein 1r-m, as long as cross-vein 1m-Cu, 2× length of cross-vein Cu-a; middle serrulae of lancet each with 2 proximal and 7 to 9 distal teeth. In *M. shengi*, the labrum and clypeus entirely yellowish white; mesoscutellum entirely black; lateral margins of pronotum with yellowish white maculae smaller than the former; basal 1/3 of hind femur yellowish white, apical 2/3 black; middle 1/3 of hind tibia a broad yellowish white ring; hind tarsomere 1 almost entirely yellowish white, but base with weak black macula; postocellar area 3× broader than long; distance between cenchri 2.5× breadth of cenchrus; fore wing with cross-vein 2r joining cell 2Rs at apical 1/3, petiole of anal cell in fore wing about 1.5× length of cross-vein 1r-m, 0.7× length of cross-vein 1m-Cu, 1.5× length of cross-vein Cu-a; middle serrulae of lancet each with 1 to 2 proximal and 5 to 6 distal teeth.

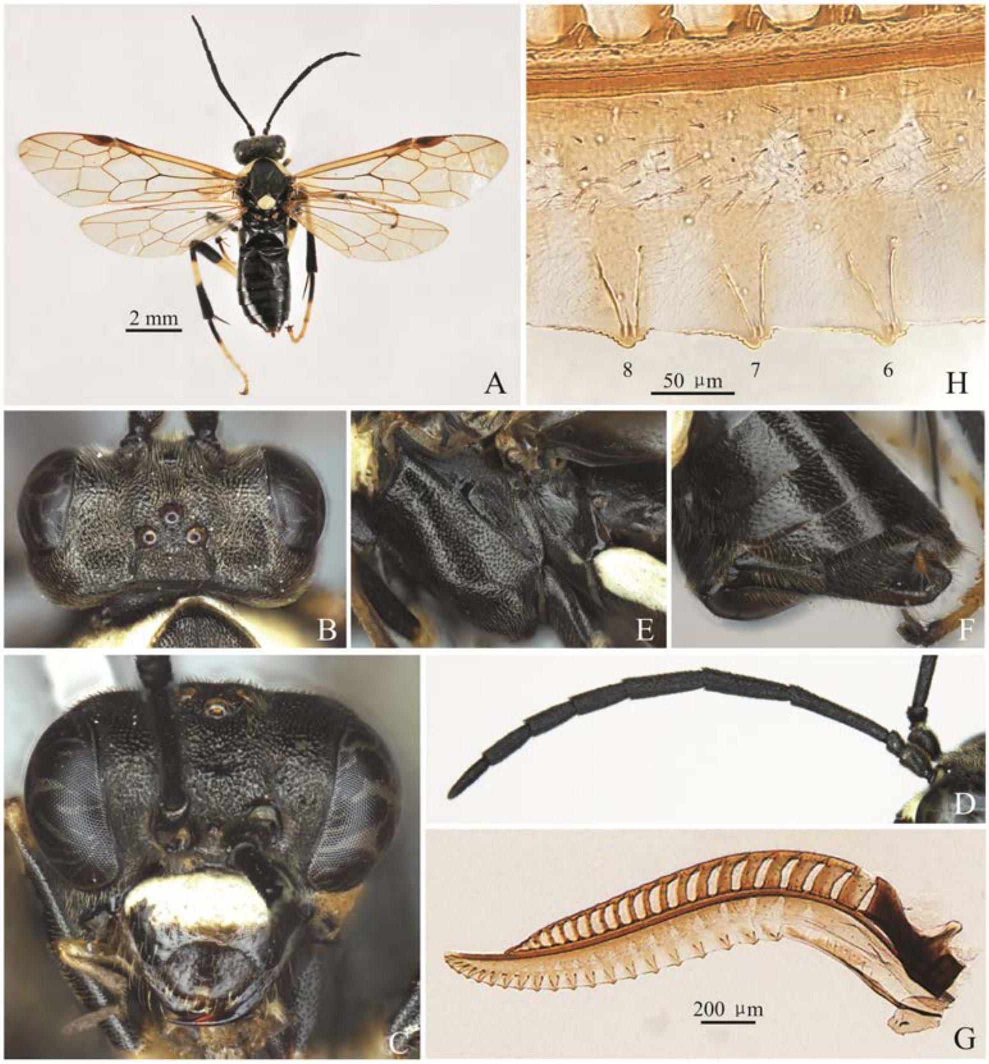

Figure 2. *Macrophya pseudoshengi* Liu, Li & Wei **sp. nov.**, ♀, holotype. A. Adult, dorsal view; B. Head, dorsal view; C. Head, anterior view; D. Antenna, lateral view; E. Mesopleuron and metapleuron; F. Ovipositor sheath, lateral view; G. Lancet; H. The 6th–8th serrulae.

Discussion

The *Macrophya annulitibia* group originally proposed by Liu *et al*. (2015) is the tenth largest of the defined species groups of *Macrophya* Dahlbom, 1835 in terms of known species according to Li *et al*. (2017) and Liu *et al*. (2016). At present, there are 17 species belonging to this group in China by Xie *et al*. (2018), including another two new species from Sichuan and Tibet: *M. annulitibia* Takeuchi, 1933; *M. brevicinctata* Li, Liu & Wei, 2016; *M. cloudae* Li, Liu & Wei, 2017; *M. gongshana* Li, Liu & Wei, 2017; *M. kaiweni* Liu, Li & Wei **sp. nov**.; *M. liufeii* Li, Xie & Wei, 2018; *M. niuae* Li, Liu & Wei, 2017; *M. parapompilina* Wei & Nie, 1999; *M. pompilina* Malaise, 1945; *M. pseudoshengi* Liu, Li & Wei **sp. nov.**; *M. qinlingium* Li, Liu & Wei, 2016; *M. rugosifossa* Li, Liu & Wei, 2016; *M. shengi* Li & Chu, 2015; *M. ludingensis* Li, Song & Wei, 2018; *M. spinoserrula* Li, Liu & Wei, 2017; *M. tenuisoma* Li, Liu & Wei, 2017 and *M. xinan* Li & Liu, 2015 from China. *M. annulitibia* is also known from Japan, North Korea and East Siberia (Takeuchi 1933) and *M. gopeshwari* and *M. naga* occur in India (Saini *et al*. 1986; Saini & Vasu 1997). The host plants of this group are unknown. The included key and geographical distribution map of the *M. annulitibia* group should facilitate the recognition and identification of the Chinese species (Fig. 3).

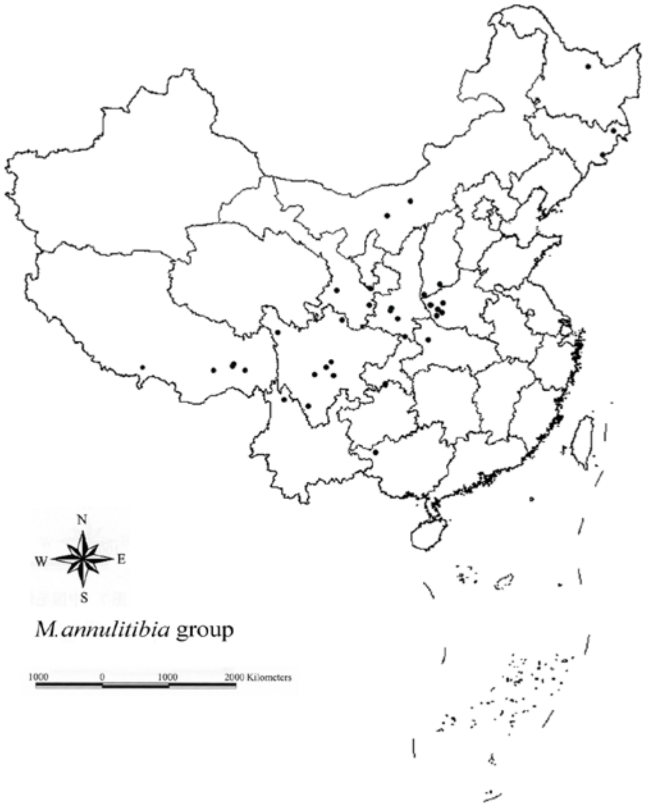

Figure 3. Geographical distribution map of *M. annulitibia* group in China.

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